

Application No.: 10/710,886

Docket No.: 22040-00035-US1

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A circuit board transferring apparatus comprising:

a moving mechanism for vacuum-attracting the pad forming face of a circuit board and picking up ~~a~~ the circuit board by an attracting nozzle and transferring the circuit board to a carrying tray on whose surface an adhesive layer is formed;

an imaging unit for photographing the pad forming face of the circuit board picked up by the attracting nozzle;

image processing means for processing the image photographed by the imaging unit and recognizing the arrangement of pads; and

positioning means for deciding a transfer position of the circuit board on the carrying tray in accordance with a recognition result by the image processing means,

wherein the attracting nozzle mounts and releases the circuit board in an upward facing position on a photographing table to image the pad forming face with the image processing means, and

wherein, after the image processing means images the pad forming face, the attracting nozzle picks up the circuit board from the photographing table in a specified position by the positioning means and transfers the circuit board to a predetermined position on the carrying tray while maintaining the pad forming face in the upward facing position.

2. (Canceled).

3. (Currently amended) A circuit board transferring method, comprising:

picking up the circuit board with an attracting nozzle located on a pad-forming face of the circuit board;

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releasing the circuit board from the attracting nozzle and mounting the circuit board on a photographing table such that the pad-forming face of the circuit board is mounted in an upward facing position;

a step of photographing the pad forming face of a the circuit board to recognize a pad arrangement through image processing when vacuum attracting and picking up the circuit board by an attracting nozzle and;

transferring the circuit board to a carrying tray on whose surface an adhesive layer is formed; and

a step of deciding the a transfer position of the circuit board on the a carrying tray in accordance with the recognition result of the pad arrangement; and

transferring the circuit board to the carrying tray on whose surface an adhesive layer is formed while maintaining the pad-forming face of the circuit board in the upward facing position.

4. (Currently amended) A solder ball mounting method comprising using the circuit board transferring apparatus of claim 1, the method comprising:

a step of vacuum-attracting and picking up a plurality of solder balls from a ball housing vessel by an using the attracting nozzle;

a step of simultaneously transferring the picked-up solder balls to a plurality of pads formed on respective pad forming faces of a plurality of circuit boards transferred to a the carrying tray by the circuit board transferring apparatus of claim 1; and

a step of welding the solder balls transferred to the pads by applying a heat treatment to the plurality of solder balls transferred onto the pads.